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10/606,808	06/27/2003	Hae Jin Yun	041501-5583	5874

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EXAMINER	
WANG, GEORGE Y	

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H·A

Office Action Summary	Application No.	Applicant(s)	
	10/606,808	YUN, HAE JIN	
	Examiner	Art Unit	
	George Y. Wang	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address. --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 January 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) *28 and 29* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 June 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Newly submitted claims 28-29 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

This application contains claims directed to the following patentably distinct species of the claimed invention:

(1) the specifics of the LCD device and method comprising an active layer disposed below the second data line, a source electrode, and a drain electrode comprising a first embodiment corresponding to claims 1-27;

(2) the specifics of the LCD device comprising an active layer disposed below the second data line including a portion thereof at the second line, a source electrode, and a drain electrode comprising a second embodiment corresponding to claims 28-29.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim~~s~~ 28 & 29 withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-22 and 24-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Kim (U.S. Patent No. 5,790,222).

4. As to claim 1, Kim discloses a TFT-LCD with an insulating substrate (40), the gate line (42) and the second data line (49), an active layer (45, Fig. 5) below a gate line (42), a first data line (43) perpendicular to the gate line (42) and separated from the gate line by two or more insulating layers (col. 3, lines 8-9), a second data line (49) (upper data line) crossing the gate line (42) on a same line as the first data line (Fig. 4), a thin film transistor (TFT) at the crossing point of the second data line (49), a source electrode (47) and a drain electrode (48), a third data line (49) (lower data line) (col. 2, lines 19-20), disposed perpendicular to the gate line (42) and electrically connects the first and the second data lines with each other (thru contact holes T1 and 7-2 that can be seen in Fig. 4) and a pixel electrode (51) in the pixel region.

5. As to claims 2 and 3, Kim discloses the LCD as recited above that the gate electrode (fig. 5, ref. 41) which is an extension of gate line (42) and the data line (43) are on the same layer on top of the substrate and Kim in disclosing the prior art (col. 1, lines 14-15) teaches that the gate electrode is made from chromium.

6. As to claim 4, Kim discloses the LCD as recited above where in Fig. 5 that the first data line (43) is adjacent to the pixel electrode (51).

7. As to claim 5, Kim the LCD as recited above also having a passivation layer (50) formed over the entire surface of the insulating layer (44) including the second data line (49) (see Fig. 5).

8. As to claims 6 and 7, Kim discloses the LCD as recited above with first, second and third contact holes (Fig. 4) on both sides of the first data line (43) and on both sides of the second data line (49) and at the drain electrode (48) and the connection of the data lines through the contact holes is disclosed in (col. 4, lines 33-53).

9. As to claim 8, Kim discloses the LCD as recited above where the thin film transistor (TFT) includes a source electrode (47) protruding from the second data line (49), a drain electrode (48) apad from the source electrode (47) and a gate electrode (41) extending from the gate line (42).

10. As to claims 9 and 10, The partial overlapping of the source electrode (47) and the drain electrode (48) on either side of the gate electrode (41) to define 'C'-shaped groove can be seen from Fig. 4.

11. As to claim 11, Kim discloses the LCD as recited above where the ohmic contact layer (46) on the active layer (45) corresponding to the second data line (49), the source electrode (47) and the drain electrode (48) except the channel region is shown in Fig. 5.

12. As to claims 12 and 13, Kim discloses the LCD as recited above where the pixel electrode (51) made from ITO (col. 4, lines 50-51) and the location of the pixel electrode with the third data line (49) (lower) is disclosed in (col. 3, lines 40-59).

13. As to claim 14, Kim discloses the LCD as recited above where the formation of the second data line (49) along with the source electrode (47) and drain electrode (49) via the deposition of an amorphous silicon layer (45) and an n+ amorphous silicon layer (46) and a metal layer is disclosed in (col. 3, lines 24-36) and is shown in Fig. 5.

14. As to claim 15, Kim discloses a method of manufacturing the LCD device (col. 4, lines 8-67 and col. 5, lines 1-42) wherein the method includes a gate line (42), a first data line (43) perpendicular to the gate line (42) and separated from the gate line by two or more insulating layers (col. 3, lines 8-9), a second data line (49) (upper data line) crossing the gate line (42) on a same line as the first data line (Fig. 4), a thin film transistor (TFT) at the crossing point of the gate line (42) and the second data line (49), an active layer (45, Fig. 5) below the second data line (49), a source electrode (47) and a drain electrode (48), a third data line (49) (lower data line) (col. 2, lines 19-20),

disposed perpendicular to the gate line (42) and electrically connects the first and the second data lines with each other (thru contact holes T1 and T2 that can be seen in Fig. 4) and a pixel electrode (51) in the pixel region.

15. As to claims 16 and 17, In Fig. 5, Kim discloses a method of manufacturing the LCD device as recited above where the gate electrode (41) which is an extension of gate line (42) and the data line (43) are on the same layer on top of the substrate and Kim in disclosing the prior art (col. 1, lines 14-15) teaches that the gate electrode is made from chromium.

16. As to claim 18, Kim discloses a method of manufacturing the LCD device where, as shown in Fig. 5, that the first data line (43) is adjacent to the pixel electrode (51).

17. As to claim 19, Kim discloses a method of manufacturing the LCD device where the patterning process is photolithography so that the thin film transistor (TFT) includes a source electrode (47) protruding from the second data line (49), a drain electrode (48) apart from the source electrode (47) and a gate electàode (41) extending from the gate line (42). The formation of the second data line (49) along with the source electrode (47) and drain electrode (49) via the deposition of an amorphous silicon layer (45) and an n+ amorphous silicon layer (46) and a metal layer is disclosed in (col. 3, lines 24-36) and is shown in Fig. 5. (col.4, lines 8-46).

18. As to claims 20 and 21, Kim discloses a method of manufacturing the LCD device where the partial overlapping of the source electrode (47) and the drain electrode (48) on either side of the gate electrode (41) to define 'C'-shaped groove can be seen from Fig. 4.

19. As to claim 22, Kim discloses a method of manufacturing the LCD device where a passivation layer (50) is formed over the entire surface of the insulating layer (44) including the second data line (49) (see Fig. 5).

20. As to claims 24 and 25, Kim discloses a method of manufacturing the LCD device where the first, second and third contact holes (Fig. 4) on both sides of the first data line (43) and on both sides of the second data line (49) and at the drain electrode (48) and the connection of the data lines through the contact holes is disclosed in (col. 4, lines 33-53).

21. As to claims 26 and 27, Kim discloses a method of manufacturing the LCD device where a pixel electrode (51) made from ITO (col. 4, lines 50-51) and the location of the pixel electrode with the third data line (49) (lower) is disclosed in (col. 3, lines 40-59).

Claim Rejections - 35 USC § 103

22. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

23. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim in view of Kim et al. (U.S. Patent No. 6,100,953, hereafter "Kim 2").

Kim discloses a method of manufacturing the LCD device where the passivation layers consistof inorganic and/or organic layers are quite commonly used in liquid crystal displays, and Kim also teaches the use of passivation film (50) on the second data line (49).

However, Kim does not disclose that the passivation film consists of at least one inorganic insulating layer including silicon nitride or silicon oxide and an organic insulating layer including BenzocycloButene (BCB) or acrylic resin.

Kim 2 discloses a liquid crystal device and method where the passivation layer includes BCB, acrylic resin, polyimide compound in addition to silicon nitride or silicon oxide (col. 6, lines 33-34 and 44-46).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the silicon nitride, silicon oxide or the BCB as the material of choice for passivation layer since one would be motivated to to prevent various electrodes from interfering with the distorting electric fields from other electrodes (col. 6,lines 27-31).

Response to Arguments

24. Applicant's arguments filed January 18, 2005 have been fully considered but they are not persuasive.

Applicant's main argument with respect to claim 1 is that the Kim reference fails to specifically disclose that the that the active layer is disposed under the second data line. However, Examiner disagrees. As admitted by Applicant, the active layer (45) is disposed under the source (47) and drain electrodes (48). Therefore, since the second data line (49) and the source are essentially part of the same layer, the active layer is also under the second data line. Furthermore, in Fig. 5, it can be seen that that the reference (49) points a raise portion of the second data line, which is above the lowest portion of the active layer (45). As a result, Applicant's argument is not persuasive since Kim clearly teaches the limitation as recited in claim 1.

With regard to the argument to the method claims, Applicant asserts that the rejection is improper since the applied art does not relate the claimed method steps but rather to the structure. However, Examiner disagrees. The method steps, namely claim 15, are nominal to the structure and dependent on the structure itself. In fact, the method merely recites that each of the elements of the device are "formed." Thus, the rejection does teach and suggest the method steps as well as the device elements. Furthermore, the active layer is also disposed under the second drain line for the reason discussed above.

As a result, Examiner holds to the validity of the references used and maintains rejection.

Conclusion

25. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Y. Wang whose telephone number is 571-272-2304. The examiner can normally be reached on M-F, 8 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gw
May 16, 2005

DUNG T. NGUYEN
PRIMARY EXAMINER